

MAD

Mount Arden Land System

Moderately steep to steep hillslopes near the western edge of the Southern Flinders Ranges between Saltia and Wyacca Bluff.

Area: 77.8 km²

Geology: Fine sandstones and siltstones of the Willochra Formation, with siltstones of the Tapley Hill Formation.

Topography: Moderately steep to steep hills with slopes of up to 60%. About 15% of the system is undulating to gently rolling with slopes of less than 15%. Rocky outcrops are sporadic and extensive in places on steeper slopes. Valley floors are generally narrow, but there are minor areas with gently undulating valley floors.

Elevation: 320 m in the north, to 700 m adjacent to the Dutchman's Stern in the mid section of the System

Relief: Generally less than 100 m, and less than 30 in places

Annual rainfall: 295 – 450 mm average

Soils: The soils are predominantly shallow sandy loams to loams over sandstone, siltstone or dolomite basement rocks.

Main soils:

L1a Shallow loam on rock - finer grained rocks such as siltstones

L1b Shallow sandy loam on rock - coarser grained rocks such as sandstones

A2 Shallow calcareous loam - dolomites and calc-siltstones

C2 Gradational loam on rock

Minor soils:

D1 Loam over red clay on rock

D4 Deep loam over pedaric red clay

D7 Loam over poorly structured red clay on rock

M2 Deep gradational clay loam

RR Rock outcrop

Summary:

The Mount Arden Land System comprises rolling to steep low hills and hills with widespread rocky outcrops. Only about 15% of the system is potentially arable, and much of this is too steep for regular cropping. The soils are sandy loams to loams, sometimes calcareous, and generally shallow over basement rock. Deeper soils occur on narrow footslopes, fans and valley floors. The soils are generally moderately fertile and well drained. Most land is too steep or rocky for uses other than grazing, and much of the potentially arable is too susceptible to water erosion for regular cropping.



Soil Landscape Unit summary: 18 Soil Landscape Units (SLUs) mapped in the Mount Arden Land System:

SLU	% of area	Main features #
AAC	18.0	Low hills and hills formed on interbedded sandstones and siltstones of the Willochra Formation.
AAD	9.6	There is significant rocky outcrop and surface stone, particularly on steeper slopes. Watercourses occupy narrow valleys.
AAE	8.9	
AAI	6.2	AAC Rolling low hills with slopes of 10-30% and relief of less than 30 m
AAK	22.9	AAD Steep rocky low hills with slopes of 30-60%, sometimes 75%, and relief up to 90 m. AAE Steep rocky hills with slopes of 30-60% and relief exceeding 90 m. AAI Rolling low hills with as for AAC, but with eroded watercourses. AAK Steep rocky hills as for AAE, but with eroded watercourses. Main soils: shallow sandy loam on rock - L1b (E) shallow loam on rock - L1a (C-E), shallow calcareous loam - A2 (L), gradational loam on rock - C2 (M), and outcropping rock - RR (M). Shallow soil profiles, steep slopes and rockiness restrict land use to grazing or conservation over most of these landscapes.
ADD	1.8	Low hills and hills formed on calc-siltstones of the Tapley Hill and Willochra Formations, and
ADH	0.7	Skillogalee Dolomite. There is significant rocky outcrop and surface stone, particularly on steeper slopes. Watercourses occupy narrow valleys.
ADI	3.1	
ADJ	8.0	ADD Steep low hills with slopes of 30-60% and relief up to 100 m.
ADK	6.1	ADH Rolling rises and low hills with slopes of 10-30% and relief of less than 50 m. ADI Moderately steep to steep ridges with slopes of 20-50%, relief of up to 100 m, some watercourse erosion and minor scalding. ADJ Steep low hills with slopes of up to 50% and relief to 100 m. About 15% of the landscape comprises gentler slopes of 10-20%. ADK Steep hills with rounded more gently sloping crests and upper slopes. Steeper slopes are up to 60%, grading to 10% on broad crests. Relief is up to 150 m. Main soils: shallow loam on rock - L1 (E), shallow calcareous loam - A2 (L), gradational loam on rock - C2 (L), loam over red clay on rock - D1 (L) and outcropping rock - RR (M). Shallow soil profiles, steep slopes and rockiness restrict land use to grazing or conservation over most of these landscapes.
AYk	1.3	Steep slopes formed on Brachina Formation shales. Slopes are 25-75%. There is significant surface stone, scree and eroded patches. Watercourses are commonly eroded. Main soils: shallow loam on rock - L1 (E) and shallow calcareous loam - A2 (E). This land is highly susceptible to erosion, and is too steep for any uses other than grazing.
EFB	1.1	Rises and gentle slopes formed on fine grained rocks of the Tapley Hill and Willochra Formations.
EFG	2.2	EFB Undulating slopes and rises, 2-5% slope.
EFI	2.2	EFG Gentle slopes of 1-3% with creek flats and eroded watercourses.
EFII	2.5	EFI Rolling rises with slopes of 10-20% and some watercourse erosion. EFII Rolling rises with slopes of 10-20% and significant watercourse erosion. Main soils: shallow loam on rock - L1 (E), shallow calcareous loam - A2 (E) and gradational loam on rock - C2 (L-C). These slopes are semi-arable, although many soils are shallow and stony, with limited waterholding capacity. Much of EFI and EFII is too steep for regular cropping.
EHG	1.5	Rises formed on siltstones and fine sandstones of the Willochra Formation.
EHH	1.8	EHG Lower slopes, pediments and low rises with slopes of 1-3%. EHH Undulating slopes and rises with slopes of 4-12% and relief up to 30 m. Main soils: loam over poorly structured red clay on rock - D7 (E), shallow loam on rock - L1 (E) and shallow calcareous loam - A2 (E), with deep loam over pederic red clay - D4 (L-M) on lower lying ground. Most of this land is arable, although some of the soils are shallow and stony. Watercourses are commonly eroded and need protection.
EUH	2.1	Undulating valley floor with stony rises formed on Tapley Hill Formation siltstones and associated alluvium. Slopes are 5-15% Watercourses are generally eroded. Main soils: shallow calcareous loam - A2 and shallow loam on rock - L1 on stony rises, with deep gradational clay loam - M2 and deep loam over pederic red clay - D4 on alluvium. The gentler slopes are arable, but run-on from adjacent steeper slopes predisposes this landscape to erosion.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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|-----|--|-----|-----------------------------------|
| (D) | Dominant in extent (>90% of SLU) | (C) | Common in extent (20-30% of SLU) |
| (V) | Very extensive in extent (60-90% of SLU) | (L) | Limited in extent (10-20% of SLU) |
| (E) | Extensive in extent (30-60% of SLU) | (M) | Minor in extent (<10% of SLU) |



Detailed soil profile descriptions:

- A2** Shallow calcareous loam (Paralithic, Hypercalcic / Supracalcic Calcarosol)
Calcareous stony loam grading to soft or rubbly carbonate over weathering dolomite or calc-siltstone within 50 cm.
- C2** Gradational loam on rock (Calcic, Red Dermosol)
Stony loam grading to a well structured red clay, calcareous at base forming in weathering siltstone between 50 and 100 cm.
- D1** Loam over red clay on rock (Calcic, Red Chromosol)
Medium thickness loam to clay loam abruptly overlying a well structured red clay, calcareous with depth grading to weathering rock within a metre.
- D4** Deep loam over pederic red clay (Calcic, Pedaric, Red Sodosol)
Medium thickness loam over a finely structured crumbly red clay, calcareous with depth, grading to alluvium.
- D7** Loam over poorly structured red clay on rock (Calcic / Hypercalcic, Red Sodosol)
Medium thickness sandy loam to clay loam abruptly overlying a coarsely structured, often dispersive red clay, calcareous with depth, grading to highly weathered quartzite or quartzitic shale.
- L1a** Shallow stony loam (Lithic, Leptic Rudosol OR Calcareous, Lithic, Leptic Tenosol)
Shallow stony loam to clay loam overlying fine grained basement rock with or without soft carbonate in fissures.
- L1b** Shallow stony sandy loam (Lithic, Leptic Rudosol OR Calcareous, Lithic, Leptic Tenosol)
Shallow stony sandy loam overlying sandstone with or without soft carbonate in fissures.
- M2** Deep gradational loam (Calcic, Red Dermosol)
Thick clay loam grading to a well structured red clay, calcareous with depth, overlying deeply weathered rock or colluvial wash,.
- RR** Rock outcrop

Further information: [DEWNR Soil and Land Program](#)

